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(54) Title: CANCER ASSOCIATED PROTEIN KINASES AND THEIR USES

(57) Abstract: Detection of expression of the provided protein kinase in cancers is useful as a diagnostic, for determining the effectiveness of drugs, and determining patient prognosis. The encoded polypeptides further provide a target for screening pharmaceutical agents effective in inhibiting the growth or metastasis of tumor cells. The present invention further provides methods and compositions relating to agents that specifically bind to HSM801163, PCTK3, PFTK1, CRK7, PRKCN, CIT, STK6, PDK1, PAK4, ITK, BMX, PRKCM, NEK6 or PDPK1 for treatment and visualization of tumors in patients.

INTERNATIONAL SEARCH REPORT

International Application No
PL, JA 03/00409

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/12 G01N33/50 C12Q1/68 A61K38/00 A61K39/00
A61P35/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N G01N C12Q A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 06728 A (INCYTE PHARMA INC) 10 February 2000 (2000-02-10) page 24, line 20 - line 27 page 25, line 29 - line 31 page 28, line 26 - page 30, line 2 SEQ ID NO:5; SEQ ID NO:26 page 32, line 33 - page 37, line 32 -----	1-57
X	WO 01 53312 A (HYSEQ INC (US)) 26 July 2001 (2001-07-26) SEQ ID NO:320; SEQ ID NO:2106 page 20, line 24 - page 24, line 12 page 28, line 11 - line 17 page 34, line 8 - page 38, line 15 page 52, line 32 - page 54, line 26 page 55, line 30 - page 57, line 3 page 74, line 5 - page 84, line 25 page 87, line 12 - page 91, line 8 ----- -/--	1-57

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family.

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17 June 2003

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15. 10. 2003

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INTERNATIONAL SEARCH REPORT

Int'l Application No.
F01, CA 03/00409

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 81555 A (INCYTE GENOMICS INC.) 1 November 2001 (2001-11-01) SEQ ID NO:13; SEQ ID NO:31 -----	1-57
X	MEYERSON M ET AL: "A family of human cdc2-related protein kinases" EMBO JOURNAL, vol. 11, no. 8, 1992, pages 2909-2917, XP002128265 ISSN: 0261-4189 cited in the application figure legend of Fig. 1 , line 5 "PCTAIRE-3, X66362"figure 1 -----	1,14
P,X	US 6 500 938 B1 (SEILHAMER JEFFREY J ET AL) 31 December 2002 (2002-12-31) SEQ ID NO:1283, page 65; [0006]-[0008];[0079]; [0082]-[0083] -----	1-57
P,X	WO 02 101357 A (IRM LLC) 19 December 2002 (2002-12-19) [0017]-[0025] page 46, line 8 -----	1-57

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA 03/00409

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 15-57 (incomplete)
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-57 (all partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 15-57 (incomplete)

Present claims 15-57 relate to an extremely large number of possible compounds of the general formula $\alpha(\text{Pz})\text{C}$ or $\alpha(\text{Pz})$ whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the compounds of the general formula $\alpha(\text{Pz})\text{C}$ or $\alpha(\text{Pz})$ as defined on page 15, line 34 to page 21, line 30, namely to antibodies which specifically bind the claimed proteins with or without a cytotoxic moiety.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-57 (all partially)

Invention 1:

A method of screening for biologically active agents that modulate a cancer associated protein kinase function involving a polypeptide encoded by SEQ ID NO:1 or having the amino acid sequence set forth in SEQ ID NO:2 (PCTK3) and subject-matter relating thereto.

2. claims: 1-57 (all partially)

Inventions 2-14:

Invention 2-14 relates to subject-matter as defined above for "invention 1", with the exception, that each of the inventions 2-14 refers to one of the amino acid sequence SEQ ID NO:4,6,8,10,12,14, 16,18,20,22,24,26, respectively and the to the corresponding nucleic acid sequence SEQ ID NO:3,5,7,9,11,13,15,17,19,21,23,25,27.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 03/00409

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 03/00409

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